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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,493	05/16/2001	Takahiro Horiguchi	208544US2	9447

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EXAMINER	
KACKAR, RAM N	

ART UNIT	PAPER NUMBER
1763	13

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/855,493	HORIGUCHI ET AL	
	Examiner	Art Unit	
	Ram N Kackar	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 21- 25, 28- 29 and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel (US 6106630).

Frankel discloses a plasma processing apparatus with a casing (Fig 1B) having a work table on a pedestal configured to support a substrate (Fig 1 B-14), means for process gas (Fig 1B-9), an exhaust system (Fig 1B-23) and a protective conductive film of thickness 50-750 micron (Abstract) comprising titanium oxide and insulating material aluminum oxide (Col 10 lines 55-60), formed by thermal spraying (Col 12 lines 13-14), configured to conduct static electricity generated on the work table to a grounded portion outside the process chamber (Col 2 lines 56-65 and Col 10 lines 17-19) without connecting to the chamber casing.

Frankel does not expressly disclose the conductive film from the top of the pedestal continuing through the shaft part of the pedestal and then to ground. However, Frankel discloses ground connection for the protective film as well as the bottom of the shaft (Col 10 lines 17-19). Frankel also discloses that the film could cover larger area also (Col 2 lines59- 61).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Frankel by extending the conductive film to the entire pedestal surface so as to be able to have a ground connection at the most convenient and reliable place.

Claims 23 and 24 cite product of a process limitations and have no patentable significance.

Regarding claim 39, Frankel is not explicit about the pedestal fixing structure.

But, it would have been obvious to provide a fixing structure so as to make sure of a good ground connection, either through the casing or directly. A person of ordinary skill would have known that the ground connection through the casing would have to penetrate any insulating film, which could have resulted from deposition process.

3. Claims 26-27, 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel (US 6106630) in view of Shinohara et al (US 5612144).

Frankel as applied above does not expressly disclose that the conductive layer is formed over the insulating surface.

Shinohara et al disclose conductive layer on top of ceramic layer for removing static electricity (Col 3 lines 26-31).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to modify Frankel to form the conductive layer on ceramic of high resistivity so that the removal of electrification through the conductive layer could be safe.

4. Claims 30-31 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel (US 6106630) in view of Kenichiro Shiozawa et al (JP 07240457)

Frankel as applied above does not disclose connecting a positive bias to conductive film to discharge electrification.

Shiozawa discloses a plasma reactor where electrical bias through a switch is used to neutralize accumulated charge between (Abstract and Fig 1). The switch could be used to connect various bias voltages or ground depending on process requirement.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to modify Frankel by connecting bias instead of ground for faster discharge of accumulated charges, preferably through a switch for flexibility.

5. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel (US 6106630) in view of Suzuki Shinji (JP 05198498).

Frankel as applied above does not disclose a window for admitting UV rays on an oxidizing gas like ozone.

Suzuki Shinji discloses a treating chamber (Fig 1) with a window (40), UV lamp (45) and oxidizing gas Ozone (Abstract).

It would have been obvious to one having ordinary skill in the art at the time invention was made to provide for UV rays and Ozone for oxidation because it would be possible to take care of charged particles by coating susceptor with conductive layer.

6. Claims 42 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel (US 6106630) in view of Shinohara et al (US 5612144) as applied to claims 26-27, 41 and 43 and further in view of Kenichiro Shiozawa et al (JP 07240457).

Frankel or Shinohara as applied above do not disclose connecting an electrical bias to conductive film to discharge electrification.

Shiozawa discloses a plasma reactor where electrical bias through a switch is used to neutralize accumulated charge between (Abstract and Fig 1). The switch could be used to connect various bias voltages or ground depending on process requirement.

Repeating the discussion as for claim 30-31, it would have been obvious to one having ordinary skill in the art at the time invention was made to connect bias instead of ground for faster discharge of accumulated charges, preferably through a switch for flexibility.

Response to Arguments

7. Applicant's arguments filed 04/22/2003 have been fully considered but they are not persuasive.

Applicant has argued that in Frankel as the shaft is not exposed to the process chamber one of ordinary skill would not assume that the protective layer covers the shaft.

Examiner disagrees. Frankel discloses that the protective layer is grounded to reduce charge build up. Shinohara discloses that the ground connection should be done not as a point but as a surface (Col 3 line 47-51) and the speed of removal of electrification needs to be controlled. (Col 3 lines 15-17). A ground wire up to the top of shaft would not be through a surface and even if the shaft is of aluminum or alloy as suggested by the applicant, the drastic change of resistivity would make discharge of electrification uncontrollable.

Therefore it would have been obvious to continue the conductive film up to the bottom so as to have a reliable and controlled removal of electrification through the same resistivity material.

8. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
May 12, 2003

Luz L. Alejandro
Primary Examiner
Art Unit 1763